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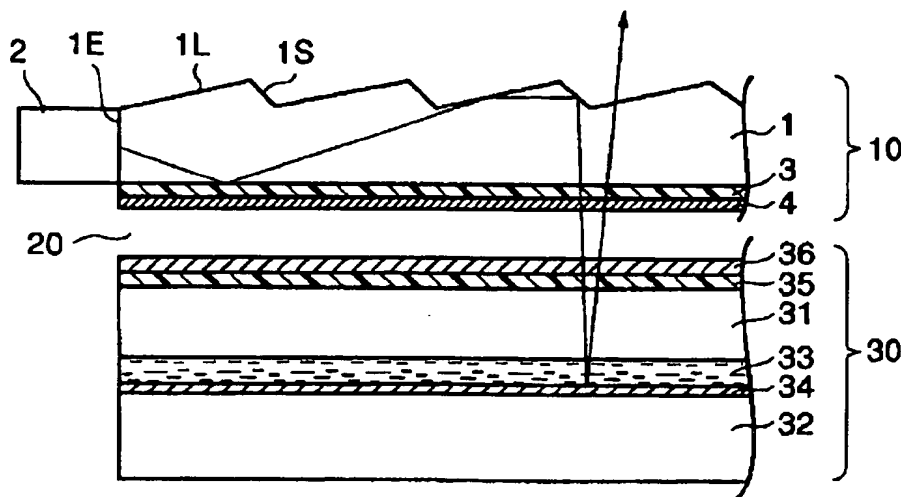
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(54) Title: SURFACE ILLUMINATION DEVICE AND DISPLAY DEVICE USING THE SAME



(57) Abstract: An object of the invention is to provide a surface illumination device and a display device using it, which can contribute to improvement of display qualities. A surface illumination device 10 comprising a light guide plate 1 for propagating incident light inside itself and reflecting the light at the reflecting prism face 1S to output the light from the light exit face. This further comprises: a polarizing plate 3 provided on the light exit face; and an anti-reflection film 4 provided on the polarizing plate 3. The reflecting prism face 1S extends so that a direction of electric vector's vibration of an s-polarized light component of a reflecting light ray caused by an incident light ray in a predetermined propagation direction is in parallel with a polarization axis of the polarizing plate 3, whereby a light efficiency can be improved.

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C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 950 851 A (NITTO DENKO CORP) 20 October 1999 (1999-10-20) cited in the application	1-3, 7, 8, 12-14
Y	paragraph '0061! - paragraph '0065! paragraph '0086! - paragraph '0094!; figure 8	4-6, 9-11, 15, 16
Y	----- PATENT ABSTRACTS OF JAPAN vol. 1999, no. 13, 30 November 1999 (1999-11-30) -& JP 11 231320 A (ENPLAS CORP), 27 August 1999 (1999-08-27) cited in the application abstract; figures 1, 2, 12 ----- -/-	4-6, 9-11, 15, 16

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	EP 0 907 050 A (THOMSON MULTIMEDIA SA) 7 April 1999 (1999-04-07) paragraph '0015! - paragraph '0016!; figure 4	5,6,10
A	----- BLOM S M P ET AL: "TOWARDS POLARISED LIGHT EMITTING BACK LIGHTS: MICRO-STRUCTURED ANISOTROPIC LAYERS" ASIA DISPLAY / IDW'01. PROCEEDINGS OF THE 21ST INTERNATIONAL DISPLAY RESEARCH CONFERENCE IN CONJUNCTION WITH THE 8TH INTERNATIONAL DISPLAY WORKSHOPS. NAGOYA, JAPAN, OCT. 16 - 19, 2001, INTERNATIONAL DISPLAY RESEARCH CONFERENCE. IDRC, SAN JOSE, CA: SID, vol. CONF. 21 / 8, 16 October 2001 (2001-10-16), pages 525-528, XP001134225 figure 1 -----	2

INTERNATIONAL SEARCH REPORT

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Patent document cited in search report		Publication date	Patent family member(s)	Publication date
EP 0950851	A	20-10-1999	JP 11306829 A	05-11-1999
			JP 2000048617 A	18-02-2000
			EP 0950851 A1	20-10-1999
			US 6196692 B1	06-03-2001
JP 11231320	A	27-08-1999	NONE	
EP 0907050	A	07-04-1999	FR 2769382 A1	09-04-1999
			EP 0907050 A1	07-04-1999
			JP 11167809 A	22-06-1999
			US 6497492 B1	24-12-2002